

The collection of the Mallophaga is the first made from birds of the Galapagos Islands. Specimens of bird-lice were taken from 183 bird individuals representing thirty-four out of the seventy-nine bird species so far recorded from the Islands. Mallophaga were taken from twenty-six out of the forty-eight bird species and from all of the five bird genera peculiar to the Islands. There is a total of forty-three Mallophagous species represented in the collection, twenty-five of which I have described as new. The problem of the occurrence on the Galapagos birds of previously known species of parasites, and the extraordinary distribution of various Mallophagous species on widely dissimilar bird hosts of the islands make

the study of this unique collection of Mallophaga a most interesting one. Little of value in the way of suggestions as to the affinities of the five bird genera peculiar to the islands, drawn from a study of their parasites, can be got at until a better knowledge of the Mallophaga of the birds of the west coast of South and Central America is had. Up to the present no collections of Mallophaga have been studied from the region south of Panama, but such collections are now being made in Bolivia and and Chili, and their examination should offer much of interest in connection with the present Galapagos Island collection.

All the specimens here referred to are now in the entomological collections of Stanford University.

NOTES ON CRYPTICERYA TOWNSENDI CKLL.

BY T. D. A. COCKERELL AND GEO. B. KING.

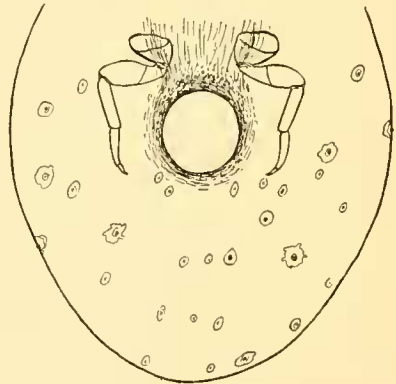
Crypticerya townsendi was described from specimens collected on the Mescalero Apache reservation, N. M. At the same time a var. *plucheae* was described, from the Mesilla Valley; I am now convinced that this is a valid species, and must be called *Crypticerya plucheae*. The next find of *C. townsendi* was on Gutierrezia at Albuquerque, N. M., by the present writer, in Sept., 1897. So far, the species had only occurred sparingly, and on a single species of plant; but on Aug. 26, 1900, my wife and I found it in great quantity on Goat Mtn., Raton, N. M., living on Compositae of five

different genera. The food-plants of *C. townsendi* at Raton were submitted to Prof. E. L. Greene who determined them as follows:—*Townsendia grandiflora* Nutt., *Picradenia floribunda* (Gray), *Grindelia squarrosa* Pursh, *Gutierrezia sarothrae* (Pursh) and *Bahia chrysanthemoides* Gray. Specimens collected at Raton Aug. 26, gave birth to young at the end of October. Mr. G. B. King at my request, has kindly made measurements of the antennae and legs, and these, with other observations, are given by him below. [*T. D. A. Cockerell.*]

On October 27, 1900, I received a

small box of living specimens of the above mentioned coccid from Prof. Cockerell; which contained three old females giving birth to young; all of the others were adult but younger and contained eggs, embryonic larvae, and some with the embryo removed, while others were nearly matured larvae. The three individuals which I have termed old, all proved to have eleven segmented antennae, with the eleventh segment always longest, two and three next, and five shortest; four, six and seven seem to be nearly equal, as also do eight, nine and ten. The width of the several segments is quite uniform with the first of course as usual broadest. (1) 260. (2) 128. (3) 120. There is very little difference in their width after leaving segment four, the average being about 104. Length of middle leg: Coxa 200-260. Femur with trochanter 680-720. Tibia 580-600. Tarsus 360-380. Claw 108. Width: Coxa 420. Trochanter 306-320. Tibia 160. Tarsus 108. Claw 48. The younger forms have ten and eleven segmented antennae; those with eleven segments, the eleventh were longest, one, two and three next, with five shortest. In the ten segmented forms, ten is longest, then three, two next, then one. The segments of these younger forms seem to be quite variable as do also the middle legs, from the following measurements: The eleven segmented form, — Coxa 200. Femur with trochanter 600. Tibia, 480. Tarsus 300. Claw 100. The ten segmented form, — Femur

with trochanter, 560. Tibia 544. Tarsus 300. Claw 104. Newly hatched larvae, red, elliptical in shape, 1 mm. long, $\frac{1}{2}$ mm. broad. Antennae and legs black. Eyes black, large, 56 micromillimeters in diameter. Antennae six segmented, 6 very long, 3 next, 2 and 4 nearly equal, 1 next, and 5 is shortest, although 4 is but very little longer. The formula of their antennae would be 62145. Middle leg. Coxa 60. Femora with trochanter 200. Tibia 192. Tarsus 140. Claw 40. Eggs oval, clear



Genital orifice of *Cryptocerya townsendi* behind the hind legs.

white at first but turn red later on, but when cannot be stated, owing to the fact that all takes place inside of the body of the female. A sketch is given, showing the position and size of the genital orifice, just behind the hind legs, and is a known character of *Crypticerya*. Dr. L. O. Howard seems to have been the first to call attention to this character, together with an exhibition of speci-

mens, before the Entomological society of Washington. The size of the genital orifice in mounted specimens under cover-glass is 1 mm. in diameter.

Measurements of the antennal segments of the three full grown females, the length of which were $5\frac{1}{2}$ mm. 5 broad and 4 high. The measurements in the tables are in micromillimeters.

Segments.	1	2	3	4	5	6	7	8	9	10	11
	136	120	16	56	52	64	64	80	80	80	180
	136	120	16	68	52	68	76	76	80	80	180
	130	120	136	60	52	68	76	80	80	80	160
	120	120	136	64	48	64	76	80	80	80	180
	120	120	136	52	40	72	56	80	80	72	168
	120	120	120	60	48	64	64	68	76	68	168

Measurements of the antennal segments of the younger forms. ♀ 4 mm. long, 3 broad, $2\frac{1}{2}$ high, 10 and 11 segmented.

Segments.	1	2	3	4	5	6	7	8	9	10	11
	120	108	120	60	60	64	72	80	80	80	160
	120	100	104	56	48	60	60	72	88	72	160
	120	112	112	52	48	68	60	56	56	64	160
	80	100	120	48	40	80	52	60	56	136	
	80	84	120	72	40	44	40	40	56	140	

Measurements of the segments of the newly hatched larvae.

Segments.	1	2	3	4	5	6
	52	56	60	44	44	140
	52	60	60	48	44	132
	53	60	60	48	40	132
	53	60	60	48	40	132

[George B. King.]

LIFE HISTORIES OF NORTH AMERICAN GEOMETRIDAE.—XX.

BY HARRISON G. DYAR, WASHINGTON, D. C.

Heliomata cycladata Grt.

Egg. Laid singly on the edge of a leaf or in a hole or on end on the petiole. Flattened cylindrical, rounded, one diameter distinctly shorter, ends flattened, the basal one the most so, but rounded. Eight ribs projecting at the rim of the micropylar area increasing to a few more by interpolation at about two-thirds the distance toward the

other end; raised, coarsely beaded with nearly contiguous clear granules, a little waved and also slightly flexuous in course, joined by thick, curved cross-striae, a little irregular and not always quite parallel, one to each bead. At the base the sculpture becomes confused into rounded pit-like reticulations of which confusion the short interpolated ribs seem a part. Coarse lumpy